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LAW OFFICE MANAGEMENT : A SYSTEMS APPROACH

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled Law Office Management : A Systems Approach submitted by Douglas Alexander Keith in partial fulfilment of the requirements for the degree of Master of Business Administration.

ABSTRACT

This thesis examines the meaning of the systems approach in light of its use in the study of administrative systems. A study of a medium size law office is carried out to exemplify the operationalization of the concepts of the systems approach with respect to their application to administrative systems.

The study first reviews the philosophy and concepts underlying the systems approach.

Secondly, the study attempts to provide a methodology for the implementation of the approach.

Finally, an empirical study of a law firm is carried out to provide substantive meaning to the theory and concepts explored earlier.

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CHAPTER I

INTRODUCTION

This thesis examines the functioning of one particular law office through the methodology provided by the systems approach. The orientation is from a purely business standpoint and does not contain any implications as to the ethical and professional considerations which relate to the practice of law.

Many articles have been written regarding the concern for the disproportionate increase in operating expenses in all types of business, including the law firm. Strong and Clark[1] point out that attornies who are not using efficient business methods may be losing twice for the same fault. First, in light of the rapid information systems in use in industry clients may expect more efficient service. Second, business inefficiency by definition indicates that the expense to output ratio is not satisfactory.

The law firm was chosen as an area of study because it affords subject matter which has received little or no attention in the form of a diagnostic study. The selection of an area of study which had not been previously explored has provided the freedom of designing one's own specific methodology for the problem.

Since the systems approach provides a framework for the application of organized, effective, and continuing research into business procedures it was proposed that the

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[1] Kline D. Strong and Arben O. Clark, "The Law Office Overhead Problem," Law Office Economics and Management, 9(May, 1968) p. 13-14.

systems approach would also be useful in the analysis of a law firm. Following an initial study it was ascertained that meaningful results could be produced from such a systems analysis.

Objectives of the Study

The first objective of the study was to gain as complete an understanding as possible of the concepts of the systems approach. It was perceived that the systems approach is more than a mechanistic approach to a problem. Rather, it is a way of conceptualizing and thinking about a problem. Therefore, before conducting a meaningful analysis one has to acquire an appreciation of the philosophy underlying the systems approach.

A second objective was to present a method of study and to detail the project planning and course of study required in a systems analysis. The goal here was to provide practical, implementation-orientated guidelines to ensure the study would be completed smoothly and to minimize the possibility that no important aspects would be overlooked.

Finally, the objective in conducting an empirical study was to provide substantive meaning to the theory and concepts which were explored in discussing and defining the systems approach.

Limitations of Study

The first limitation placed on the study is a rather artificial one. The discussion of the subject matter was restricted to a fairly general level. For example, the proposed methodology does not include any detailed program for the building of mathematical models which are used in testing the dynamics of the system.

A second limitation arises from our lack of practical experience in carrying out a systems analysis. Even though the quantitative factors of the study may be incomplete in some areas, the study is still carried out in the spirit of the systems approach.

Plan of Presentation

Chapter II is concerned with providing understanding of the systems approach. It involves a look at the evolution of thought processes which are requisite to understanding the systems approach.

Chapter III proposes a methodology for the operationalization of the theory and concepts set forth in Chapter II.

Chapter IV is devoted to the results of the empirical study. It includes a review of the existing system, the editing of objectives, the problem formulation, and the consideration of selected alternatives.

Since the study does not include the testing and implementation of alternatives, the recommendations for the firm had to remain on a hypothetical basis.

Chapter V summarizes the results of the research project. Some direction for future study is also indicated.

CHAPTER II

THE SYSTEMS APPROACH : AN INSIGHT

Introduction

Before a systems approach can be applied to the management function it is only reasonable that one have as thorough an understanding as possible of the systems approach. It is, therefore, the intention of this chapter to examine the meaning of the "systems approach". More specifically, we will present a definition of what a system is and then propose a concept for the operationalization of the systems approach.

Systems and Operations

The term "system" is used to cover a wide range of phenomena. We refer, for example, to communication systems, control systems, educational systems, defence systems, supply systems, political and philisophical systems. Some of these are conceptual constructs and others are physical entities. Very basically a system can be defined as "... any entity, conceptual or physical which consists of interdependent parts."[1] In taking a systems approach to management we are primarily interested in those systems which display dynamic characteristics. The essential attribute is that the system consist of parts (sub-systems) each of which displays behaviour interrelated with other parts.

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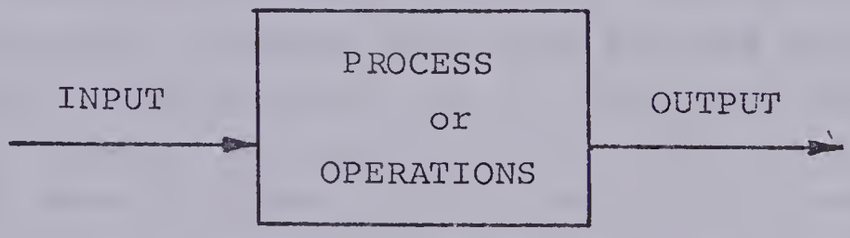
[1] R. L. Ackoff, "Systems, Organizations, and Interdisciplinary Research," in Systems Research and Design, ed. by Donald P. Eckman (New York, N.Y. : John Wiley and Sons, Inc., 1961), p. 27-28.

Following from this it is also important to note that we are concerned with behavioral systems which are subject to the control of human beings. Therefore, the relevant view for this study is of controllable behavioral systems.

Ackoff defines a behavioral system as "...a conceptual construct as well as a physical entity since such a system may or may not be treated as a system, depending on the way it is conceptualized by the person treating it."[2]

These systems are typically represented by flow charts or block diagrams with the elementary system generally taking the following form:



The basic parts of the system, as described above, are the input, the process or operations, and the output.

Inputs are usually classified by their relation to the operation of the system. For example, the input may enter the process as a raw material in physical production, it may be a factor of the environment of the system, or it may be the placement or replacement of a system component.

The operations or process part of the system may be thought of as the channels in and through which the inputs interact and pass through. Therefore, the design of a system demands that an interaction take place between selected inputs and the process unit, at the appropriate time, to achieve the desired output. As Ackoff states:

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[2] Ibid., p. 28.

> The acts are interdependent relative to the outcome if the rate of change of any outcome variable affected by change in any variable describing one of the acts depends on (i.e., is a function of) all the other relevant act variables.[3]

The third element of the system is its output, the result or accomplishment of the system's functioning. The basic criteria for evaluating the effectiveness of the system according to its objectives, is usually available at this stage. The evaluation process is the measurement of the actual output of the system with the performance standards for which the system was designed to meet.

The Thinking Process

The main problem in the examination of any phenomena is a question of where to begin. Depending on his orientation, each examiner will take his own approach to the problem. This approach is, in fact, the method in which the examiner perceives or thinks about the problem.

C. West Churchman in his book The Systems Approach[4] maintains there is something essential about the concept of a system as a way of thinking. He states:

> Systems are made up of sets of components that work together for the overall objective of the whole. The systems approach is simply a way of thinking about these total systems and their components.[5]

Churchman maintains that in the systems approach, thinking is the very first step and dictates the way in which one outlines what he is planning to do. In other

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[3] Ibid., p. 28.

[4] C. West Churchman, The Systems Approach (New York, N.Y. : Dell Publishing Co., Inc., 1968). This work is used as a main reference in the remainder of this chapter.

[5] Ibid., p. 4.

words, the manner of thinking reflects how one describes the system.

In order to gain an insight into the system being studied it is often necessary to think of the system in different terms than those normally used. There are ways of describing systems which would not come to the minds of most people who tend to look at the world in the one way most familiar to them. It is primarily the use of more "radical" approaches and the stimulation of different mental processes which set the systems approach apart from the many other problem solving approaches.

The first general step in the systems approach is to think of the system in terms of its overall objective and then describe the system in terms of this objective. For example, if a person were asked to describe a rapid transit system the normal process would be to begin by recalling those aspects which are most familiar about the system. Most people would probably begin by attempting to describe some of the general attributes of the system (i.e., a network of train tracks and underground stations with high speed electric coaches carrying people between stations). However, depending on his background the person might take a different viewpoint in describing the system. The viewpoint might be of

(1) the outside support systems for moving people to and from the stations,

(2) the movement of people within the system,

(3) the machinery and physical constructs,

(4) impact of system on the environment, or

(5) the economic implications of the system.

If the description were as narrow as any of those noted above then it might not be very useful in diagnosing the problem from the systems approach. It is important that the thinking process be on a fairly creative level which none of the above approaches exhibit. The question which must be answered in describing the system is (1) what is the system for?, or (2) what is the ultimate function of

the system to be?

In the systems approach one should begin by thinking about the function or objectives of the system, and not simply by listing some of its attributes. From our previous example, a rapid transit system could be described as a way of quickly transporting large numbers of people within a fixed geographic area and at a prescribed cost. Even in citing this example we are employing only one specific application of a systems approach. As one goes from the general case to the more specific we will find there are several different systems approaches.

Churchman examines four different ideas as to what really constitutes the systems approach. His inquiry takes the form of a debate between the hypothetical proponents of each idea. They are:

(1) the advocates of efficiency, the supporters of the scientific management techniques,

(2) the advocates of the use of science in making an objective approach to the system, the management scientists,

(3) the humanists, those who support the consideration of human feelings and values as the key issues,

(4) the anti-planners, the traditional "seat-of-the-pants" management who rely on experience and "good judgement."

We will take a summary approach in examining the ideas of the four proponents and then will attempt to draw out the most meaningful aspects from the management viewpoint.

(1) efficiency

The philosophy of the efficiency approach to systems is founded on the idea of "the one best way" i.e., the correct way to carry out a function. This approach was made popular through the efforts of Frederich W. Taylor, who pioneered the field of time-study analysis and was

followed by Frank and Lillian Gilbreth who made their contribution in motion study.[6] The efficiency approach to systems is referred to as "scientific management."

The main technique of the efficiency approach is to deal with the sub-systems which are inefficient, i.e., the bottle-necks. This follows from the fact that there seems to be one primary objective of all managers of systems, that is, the efficiency of operation. In more real terms it is the objective of reducing costs. Operationally the manager looks around his system, detects where there is an excessive use of resources (time, materials, inventories, etc.) and then proceeds to take actions to reduce the inefficiency of the particular operation.

The actual performance of the scientific management approach is not really as simple as noted above. However, it is restricted to only considering problems at the sub-system level.

The second characteristic of this approach is the mechanical attitude taken toward job analysis. The humanists are disturbed by the complete disregard for human values. The search for the optimum method usually reduces human action to a sequential series of minute actions. This analysis then forms the basis for the time-and-motion study and the establishment of standards of performance.

As we will see in more detail in the next chapter, some of the tools of analysis of the scientific management approach are useful in the development of the systems approach. However, the main inadequacy of the efficiency philosophy is that it lacks an overall point of view. The concentration on efficiency, per se, may not be in the best interest of the performance of the whole system.

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[6] R. M. Currie, Work Study (London : Sir Isaac Pitman and Sons Ltd., 1964), p. 10.

(2) science

The scientific approach is followed by the management scientist whose objective is to deal with the system as a whole. As in the case of other scientific approaches to a problem, the investigation must be conducted in a rational and logical manner. This type of thinking is carried out by the management scientist in his investigation of how the parts of the system are co-ordinated to accomplish the specified goals of the system.

Churchman outlines "... five basic considerations that the scientist believes must be kept in mind when thinking about the meaning of a system:

1. the total system objectives and, more specifically, the performance measures of the whole system;
2. the systems environment : the fixed constraints;
3. the resources of the system;
4. the components of the system, their activities, goals and measures of performance;
5. the management of the system."[7]

It can be stated at this point, without prejudice to further objective inquiry, that this list includes the essential elements of systems thinking from the management viewpoint. There are other ways of thinking about systems but, as we can evaluate from closer inquiry, this list provides a functional framework for the scientific approach.

An understanding of the objectives of the system provides the scientist not only with a sense of what the system is attempting to accomplish but also with a standard against which he can evaluate how well the system is performing. An initial focus on the system's objectives is a rational starting point because of the positive sense of direction it provides for later thinking.

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[7] Churchman, Systems Approach, p. 29-30.

The use of the term "objectives" is not necessarily the same in the systems sense as it is when it is used by systems representatives (managers, presidents, etc.) who are typically quoted as saying, "Our objectives are...". Often the objectives stated by these individuals do not accurately represent the real objectives but are an attempt to promote some of the more publicly acceptable attributes of the system. In the systems context, "...the scientist's test of the objective of a system is the determination of whether the system will knowingly sacrifice other goals in order to attain the objective."[8]

The definition and specification of the objective for the management scientist's purposes must be more than a broad generalized indication of what the system is attempting to accomplish. The scientist needs a clear, precise, and workable statement of purpose. To find out what the function of the system really is he must carefully observe the operations of the system. He cannot depend on what someone inside the system says it does.

The goal of the management scientist in attaining a workable definition of the system's objective is for the determination of a central measure or score for the system. In determining the measure of performance, "...the scientist will seek to find as many relevant consequences of the system activities as he can."[9] The scientist reserves the right to change the stated objective in the face of new evidence because in his work he must be sensitive to the complexities of the system, objective in his approach, and flexible and thorough in his thinking.

In the next stage of study the management scientist must gain an appreciation and understanding of the system's environment. This requires more than a mere statement of its existence. The scientist must be able to state in

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[8] Ibid., p. 31.

[9] Ibid., p. 34.

clear and concise terms exactly what fixed constraints exist outside the system which are requisite to the performance of the system.

The study of the environment is a difficult task, and like the statement of objectives, must be reviewed systematically and continuously. Besides having an effect on the system, the keynote to the study of the environment is that it must be outside the control of the system.

The study of the resources of the system demands exactly the opposite point of view. The resources are those factors such as money, equipment, and human talent which in the system are changed and used in the functioning of the system. In a great many systems this is the one area where the traditional management has already carried out some of the analysis. The results of this analysis are most familiar to us as it is presented in the form of the balance sheet. However, the traditional analysis does not give any indication of the human resources within the system or how the system uses the resources it has.

The systems approach provides the methodology for the construction of a management information system which will record relevant data useful in analyzing the utilization of resources, including the cost of lost opportunities.

The management scientist cannot stop with the study of resources the system now has. Instead he must be astute as to future opportunities where there is a possibility to augment the amount of resources or the economics of their use.

Resources are thought of as a general fund or supply through which the individual actions of the system can be taken. In dealing with the individual actions we are examining the components or sub-systems of the general system.

The components or sub-systems have traditionally been classified with the label "departments." However, this classification, from the management scientist's point

of view, has little relevance to the true components of the system. Analysis by department does not provide a means through which one can evaluate the significance of each department's contribution to the attainment of the system's objectives.

Churchman states, "the ultimate view of component thinking is to discover those components (missions) whose measures of performance are truly related to the measure of performance of the overall system."[10] This component (sub-system) thinking provides a framework to analyze the sensitivity of the contribution of each of the components. For example, it may not be worthwhile to increase the capacity of one of the components if the money and time spent on increasing the capacity cannot be recouped in some measurable return i.e., profit.

In constructing measures of performance for the sub-systems it is desirable that an increase in the measure of performance of the sub-system will mean, ceteris paribus, an increase in the performance of the total system. An example of the measure of performance might be the output per unit of cost in a production operation. However, if the department attempted to increase this measure through a decrease in inventory and the performance of the firm suffered because of unsatisfactory shortages then the measure would not be acceptable.

Drawing the various aspects of the system together leads one to consider the management of the system. It is the active force of management which sets the goals, allocates the resources, and attempts to control the performance of the system.

Thus the results of the management scientist's analysis takes the form of input, or a resource of, the system in its use by management. Not only does management

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[10] Ibid., p. 43.

generate the plans of the system but it must be acutely aware of the need to plan for a change of plans. Churchman concludes, "the management part of the system must receive information that tells it when its concept of the system is erroneous and must include steps that will provide for change."[11]

(3) humanists

The humanists have little to add in the way of a problem solving approach. They claim that systems are composed of people and the basic approach to systems must be made up in consideration of human values: freedom, dignity, and privacy. In view of its limited perspective one can readily appreciate that this approach is not a very useful one if used in isolation. However, the humanist does provide an approach for analyzing and considering the human aspects of the systems approach. The fact that human values do exist and are important to the performance of the system make them important to the systems analyst.

(4) anti-planners

Since the theme of our inquiry has been of the systems approach from the management (planning and control) perspective the views of the anti-planners are directly in opposition to our objectives. However, one cannot ignore what the critics of the systems approach have to say.

Whether the anti-planner is a sceptic, a determinist, a religious follower, or a believer in the "self", his view will give the planner an insight for the examination of his own beliefs and legitimation of his approach. It is really a case of the management scientist (planner) learning from and following his own principles. To understand his system he must appreciate those aspects of the system of which the anti-planner is a part.

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[11] Ibid., p. 46.

Therefore, anti-planning must basically be regarded as an integral part of the systems approach.

Conclusion

It is difficult to conclude such a philosophical discussion without feeling that one's own view of the problem is incomplete or biased. Even though a statement of the more obvious biases may not "justify" a conclusion at this point, it may present a basis for understanding the argument.

First, because the discussion has been from the management perspective with its focus on planning and control, thinking has been influenced in favor of the scientific approach.

The criticism of being too narrow can be directed at each of the approaches except the management science approach. Churchman suggests that the reason for this observation can be explained in his "theory of deception."[12] He maintains that each approach presents a way of looking at reality. However, it is not reality but only a representation of it and what is viewed is only an illusion. Therefore, even the management scientist with his models which represent "all" of the objectives of the system and compromises available to the manager may also be deceived. He may have overlooked the basic human values, his own influence on the system and his inability to understand all aspects of the system. Churchman states:

> The ultimate meaning of the systems approach, therefore, lies in the creation of a theory of deception and in a fuller understanding of the ways in which the human being can be deceived about his world and in the interaction between these different viewpoints.[13]

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[12] *Ibid.*, p. 228-232.

[13] *Ibid.*, p. 229-230.

The philosophy of systems is based on man's attempt to observe, understand, and control his world. There is a continuing perception and deception, a continual re-evolution "of the world, of the whole system, and of its components. The essence of the systems approach, therefore, is confusion as well as enlightenment."[14]

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[14] Ibid., p. 230.

CHAPTER III

THE SYSTEMS ANALYSIS : A METHOD OF STUDY

Introduction

In presenting this method of study we are detailing the project planning and the course of action required in a systems analysis. The objective in outlining this methodology is to give to the analyst practical, implimentation-oriented guidelines to ensure that the problem is approached in the spirit outlined in Chapter II.

This pre-planning is designed to ensure that the study is completed smoothly and to minimize the possibility that important aspects of the problem might be overlooked. Briefly, one must take all the precautions possible to be certain,

(1) not to become too narrow or too shallow in one's view;

(2) not to ignore feasible alternatives;

(3) not to make premature judgements.

The term "systems analysis" as we use it in this study is more than the analysis of a system as the name might imply. We saw in the last chapter how the management scientist analyzed the system and provided management with a framework for understanding the functioning of the system and for making changes to improve the performance of the system. After the changes have been made, further analysis must be carried out to ensure that the system is behaving as predicted. The use of the principles of management science has been given labels such as "operations research", "systems science," "systems engineering," or "systems analysis." Although there may be minor distinctions between some of these, we have chosen to use the term "systems analysis" for the purpose of this study.

In presenting practical, implementation-oriented guidelines in this chapter we will concentrate on the general case rather than the technical aspects of the analysis. We will not ignore the use of the various mathematical models but will refer to their uses and limitations rather than their technical details.

The Preliminary Study

In the preliminary study we are basically concerned with the initial problem recognition, identification, and definition. Churchman et al., classify this as the formulation of the problem, and suggest it as the logical starting point for an analysis.[1] The formulation of the problem is generally a sequential process, rarely completed before the next stage is commenced. The problem formulation is the statement of the problem in such a way as to constructively define how the system may proceed towards the attainment of its objectives. The analyst must subject the initial formulation to a continuous and progressive reformulation and refinement. This circular process, wherein there is a continual examination of the problem and objectives, is a distinctive feature of systems analysis.

The mechanism for continual review does not detract from the necessity that the initial formulation of the problem be as accurate as possible, within the available time and financial constraints. To ensure that the use of the time available for the study be as productive as possible a standard procedure which follows a systematic method should be developed.[2]

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[1] C.West Churchman, et al., Introduction to Operations Research (New York, N.Y. : John Wiley and Sons, Inc., 1957), p. 105.

[2] Ibid., p. 105.

Before the investigation of the system is commenced there should be an orientation period to define the nature of the problem.

(1) Orientation

In the first stage the analyst assesses the problem and the organization in an attempt to evaluate the probability of producing constructive results from an analysis.

Before starting, the analyst should know whether the problem deals with a specific issue (the bottle-neck type typically approached by scientific management techniques) or whether it is more general in nature and deals with the overall functioning of the system. Identification of the first is rather obvious while in the second the decision to study the system usually arises after some decision-maker in the system becomes dissatisfied with the general performance of the system. The problem concerning the law firm is an example of the second type.

System Investigation

For purposes of clarity, each phase of the investigation will be discussed on an individual basis. This may be somewhat misleading considering the interrelationship of the phases and the circular nature of the analysis. However, if the circular nature of the systems approach is kept in mind then the following description of the analysis will be more easily understood.

The system investigation involves the study of the system objectives and the description of the system itself. Before attempting to understand and define the system's objectives and describing the system, which may later be used in the development of mathematical models, it is first necessary to obtain data about the system.

(1) Data gathering

Data gathering activity consists of obtaining all pertinent information regarding the operation of the existing system for the identification of objectives, the formulation of the problem, the testing of alternatives, and the

implementation and follow-up of any changes to the system. It starts at the inception of the study and does not end until the system performance meets the specified objectives. This last condition suggests the same on-going problem solving activity which exists in many business entities. However, the systems approach incorporates a feedback mechanism providing information to test the performance of the system following the implementation of changes whereas the traditional approach is to consider the matter complete and go on to the next problem. A systematic approach to data gathering provides a framework to ensure that the data gathered is complete and accurate.

Not all information will be in the form of hard facts. Some degree of consideration will be given to opinion evidence. The answer as to what factual and opinion evidence will be critical to any given project will be governed by the nature of the problem and the defined objectives of the study. However, there are a few general sources of data which are common to most problems. These include:

1. objectives and purposes of operation
2. policies, organization, and personnel
3. existing facilities and procedures
4. relative efficiency of present system.

To ensure a thorough investigation, each of these areas can be expanded into a much larger and more detailed check-list (see Appendix A). It is important to remember that the purpose behind data gathering is to provide information for a thorough understanding of the system being studied so that the system itself and proposed changes to it may be accurately evaluated.

(2) Problem formulation

The problem formulation process provides a vehicle for bringing together an understanding of the different phases of the system investigation.

In the ideal situation the analyst would be subject to no restrictions such as time, finances, etc. Contemplation of the ideal, notwithstanding its unavailability, provides a conception of the best available procedure in the development of a practical, and useful procedure. This idealized conception also provides a procedural goal toward which one can work to improve his efforts. Therefore, this section will consider the idealized procedure for problem formulation which the analyst can use to design his own work.

Before one can formulate a problem it is necessary to have some idea as to what a problem is. Churchman et al., suggest that one examine the components of a problem as a basis for understanding what it is.[3]

In examining the components of a problem the first thought is that someone is not satisfied with present conditions and wants to make a decision to improve them. This decision-maker is part of the management of business systems.

Second, if the decision-maker wants something different than he presently has, then he must have some objectives identifying what he really wants.

The type of behavioral system we are concerned with functions in an environment which places constraints on various resources of the system. The third component is the system and its specification.

Finally, for the decision-maker to have a choice there must be available alternatives.

We will now consider each of these four components (management, their objectives, the system, and the alternatives) in the form of a system investigation to provide the required information for the problem formulation.

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[3] Churchman et al., Operations Research, p. 107.

(a) the management

It is vitally important when conducting a systems study to know who has the authority in the system to initiate, terminate, and modify policies governing the operation of the system.[4] It is not only important from the viewpoint of the systems investigation but it is also particularly important as a guide in the presentation of results and recommendations during and at the completion of the study.

The study of management includes (1) the identification of individual members, (2) an examination of the structure of the management in the organization, and (3) an examination of the role each member plays in the decision-making process of the group.

(b) objectives

As was indicated in the last chapter, direct questioning of the decision-maker may not expose the relevant objectives. Even though it may provide a starting point it should not be relied upon for the complete formulation of objectives.

Churchman et al., suggest a particularly effective method of revealing possible obscured or hidden objectives is to formulate a list of outcomes of the study.

For example, if in the study of the law firm the objective was to make the firm as profitable as possible within the constraints of ethical practice then the list would include such possible outcomes as (1) a change in office location or size, (2) a change in the type of practice, (3) a change in the size of the firm, (4) the adoption of more automated time recording and accounting procedures or (5) the extensive use of lay personnel. For the purpose of formulating objectives the list need not be

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[4] H. A. Simon, The Shape of Automation (New York, N.Y. : Harper and Row, Inc., 1965), p. 66.

accurate, complete, or even realistic. However, it should be designed with the proper goals in mind. The decision-maker should be asked what he would do if the results of each of the possible outcomes listed were available to the system. In many cases, depending on the list, the decision-maker would indicate that a number of the outcomes available might not be acceptable. The exploration of his reasons for rejecting the various alternatives can prove fruitful in revealing the true objectives.[5]

It is important for the analyst to appreciate the objectives which the decision-maker wishes to maintain in the system for his own fulfilment. For the purpose of this study, the system is considered as an on-going entity, presently fulfiling some of the objectives of management. Depending on the viewpoint, the need for the attainment of the objectives presently being met by the system, should be considered as possible constraints in the proposal of alternatives.

(c) the system

This study is concerned with systems which are the product of human organization. They are created through bringing together men, machines, and materials for the production of a desired (usually economic) output. In these man-made systems there is generally a division of tasks (sub-systems) among groups each of which contributes to a sequence of operations directed toward attainment of the objective of the system.[6] To gain a full understanding of the system it is essential that one not only have an understanding of those components which play an active role in the functioning of the system but also those which influence the system (constraints) and are usually considered part of the environment. These outside components

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[5] Churchman et al., Operation Research, p. 108-9.

[6] Ibid., p. 110.

include consumers, competitors, government, and the public. The understanding would not be complete without an appreciation of the operation of the sub-systems and the manner in which they are interrelated and controlled in the process of satisfying the system's objectives.

(d) the alternatives

In defining the objectives of the decision-maker it was suggested a list of outcomes be developed. These usually represent alternative courses of action. However, this list is probably not exhaustive and as complete a list of alternatives as possibly should be developed. The main obligation in this phase of the investigation is to specify all the possible actions.

Churchman et al., suggest the derivation of a list of alternatives comes about by considering if a change in any of the components of the system (personnel, operations, machines, materials, or the environment) will have an effect on efficiency.

It is possible that none of the alternative courses of action initially listed is considered a feasible solution. In such an event the analyst is faced with the problem of developing a new course of action. Furthermore, when the analyst is later evaluating alternatives he should be alert to the possibility of formulating new, and possibly better alternatives.

Now the investigation will turn to the description of the system. This next step requires the application of all the understanding that has been produced from the investigation so far.

(3) System description

The system description is the result of the presentation of data, which describes the system and its functions, in a manner which will be useful in the evaluation of alternatives. As in the example of the rapid transit system in Chapter II, the description must represent the present system in such a way as to provide constructive

direction in the specification of objectives. The system description is used

(1) as a base in the design of mathematical models which represent the functions of the system, and

(2) in the establishment of measures of effectiveness.

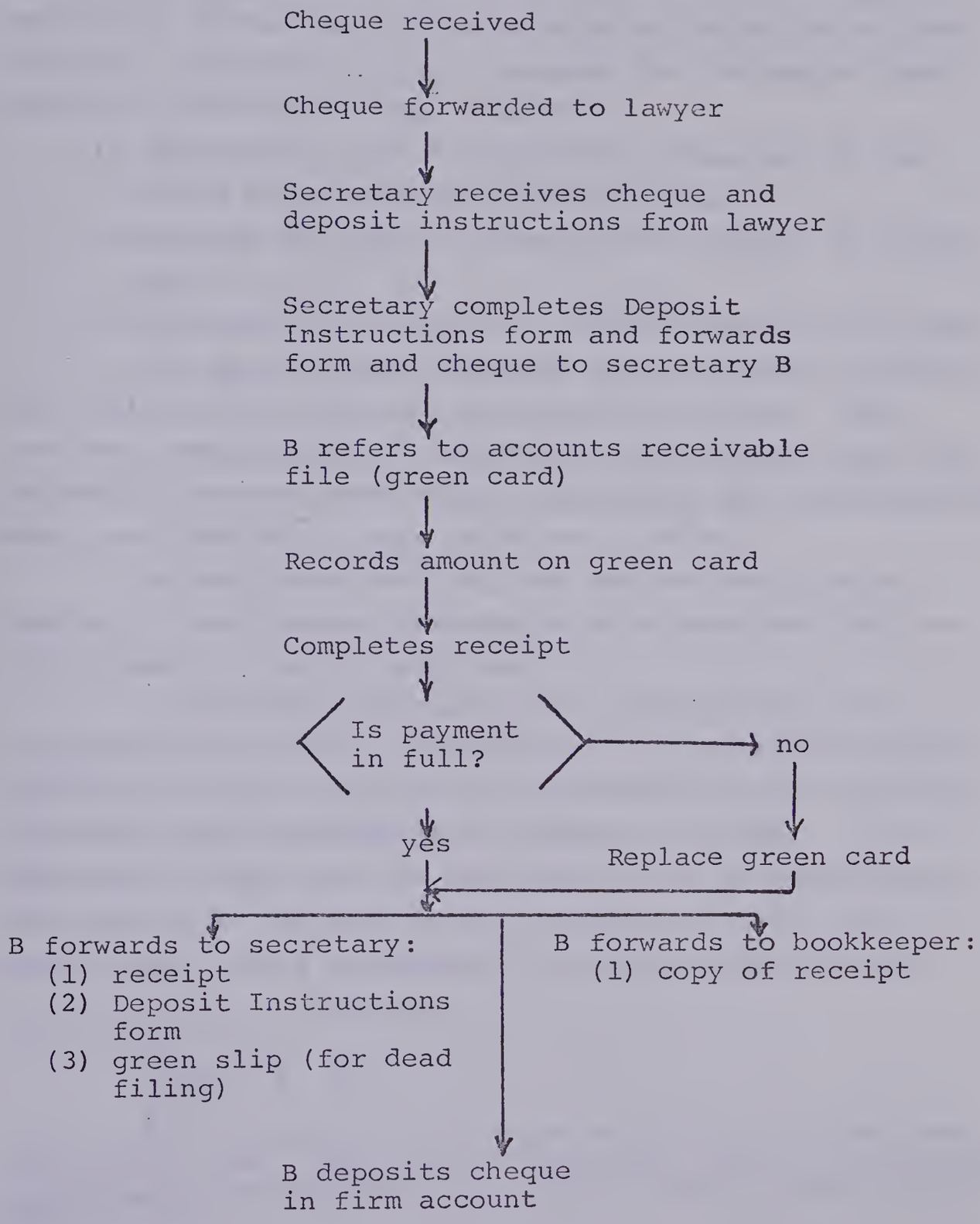
Both of these developments are used in the evaluation of alternatives.

In developing an information base for the system description, the analyst is usually faced with an abundance rather than a scarcity of raw data. This situation requires an editing process wherein the analyst can retrieve information in a manner which will provide a complete and accurate understanding of the system. A useful procedure which assists greatly in this editing process is the use of a cross-reference system for data filing and storage. If properly set up such a system will provide the analyst with ready access to information as he requires it and will also provide a mechanism which will indicate deficiencies in data. Although such a system is almost essential on larger projects it does provide the analyst with a certain degree of understanding as he identifies and classifies the data for storage.

A useful technique employed in the study of the system involves the use of charting. For example, a flow chart diagram may be used to define the sub-systems as elements of the overall (but specifically defined) system, or it may be used to define specific elements of individual sub-systems. In the first case it provides an overview of the system, while the more detailed diagram, complete with notes, sample forms, reports and other documentary evidence, provides a full picture of a specific area. Figure 3.1 is an example of the flow chart for an individual sub-system.

Other forms of charting include the analysis of work distribution, micro-motion activity, work layout flow, and even the traditional organization chart. These charts are

FIGURE 3.1 Flow chart illustrating receipt of funds.



drawn up to assist the analyst in his understanding of the functioning of the system.

(4) Examination and evaluation of alternatives

In this stage of the study the decision-maker's problem is formulated into a problem suitable for systems analysis. Churchman et al., suggest the following three steps are involved in this process:

(1) editing the list of objectives obtained in the first stage of problem formulation,

(2) editing the list of alternative courses of action, and

(3) defining the measures of effectiveness to be used.[7]

The goal in this exercise is to condense, simplify, and evaluate the alternative courses of action. This involves combining those objectives and actions which are sequential between each other, discarding the non-effective ones, and combining those which are similar.

As mentioned earlier, the analyst should also maintain a continuous, extended search procedure for the development of new alternatives.

In defining the measure of effectiveness one is attempting to specify a method for the quantitative representation of the values to be considered in the evaluation of objectives and alternative courses of action. It is important to note that in the application of measurement, the numbers of the measure are surrogates which only represent real-world phenomena.[8] In this representation

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[7] Ibid., p. 113.

[8] For a discussion of representation, language, and measurement see : Yuji Ijiri, The Foundations of Accounting Measurement, (Englewood Cliffs, N.J. : Prentice Hall, Inc., 1967), p.3-31.

process it is more difficult to construct measures of effectiveness where qualitative objectives are considered than where only quantitative objectives are involved. However, it is the development from what has traditionally been considered a qualitative property into quantitative terms that has been one of the distinguishing attributes of the systems approach.

Churchman et al., define effectiveness, the basis for selecting a course of action, as weighted efficiency.[9] For the measure of effectiveness it is essential that one have a measure of the relative importance of the objectives. In specifying the measure of effectiveness for the problem one must first establish the two component measures:

(1) the importance of the objectives, and

(2) the efficiency of the courses of action.

Following this, a composite measure of effectiveness can be developed for the problem.

Before proceeding further it may be helpful to consider the logic involved in these steps. We will illustrate the process in the following simplified abstract problem. Only two objectives are involved, O_1 and O_2; and only two alternatives are available, A_1 and A_2. Assume we have determined the efficiency of each course of action for each objective (along a scale going from 0 to 1) and show the results in the following way :

	O_1	O_2
A_1	0.3	0.7
A_2	0.5	0.2

At this point one cannot select the best course of action without knowing something of the relative importance of the objectives. In establishing the relative importance of objectives we can again establish a scale

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[9] Churchman et al., Operations Research, p. 116.

from 0 to 1. Through a cross-questioning procedure one can determine an approximate point or range on the scale for each of the objectives. For our purposes assume the relative importance of O_1 and O_2 might be 0.8 and 0.3 respectively. We can weigh the efficiency of each of the alternative courses of action for each of the objectives as follows:

	O_1	O_2	Total
A_1	0.8 x 0.3 = .24	0.3 x 0.7 = .21	.45
A_2	0.8 x 0.5 = .40	0.3 x 0.2 = .06	.46

The sum of the weighted efficiencies (efficiency times relative importance) of an alternative course of action can be termed its relative effectiveness.[10] It is this weighted efficiency (effectiveness) which is used to select a course of action.

At this stage of the study the relative degree of refinement in the process of selecting reasonable alternatives may not be very far advanced. However, the thinking involved is assessing the various alternatives has direct applications in the later consideration of alternatives.

At this stage of the study the analyst would have a fairly clear concept of the nature of the problem. It may be difficult to understand how the analyst has progressed this far without going into the process of analyzing the problem itself. In fact, at this stage, the analyst, depending on his experience, could probably make a reasonably accurate guess as to the outcome of the analysis. He could do this because he has already employed much of the thinking and many of the techniques which will be used in refining the problem in the later stages of analysis.

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[10] Ibid., p. 115.

The evaluation process involves the search, consideration, and testing of proposed changes to the present system. It is the examination and selection of alternatives which have been proposed to improve the performance of the system in a way which will assist in the attainment of the objectives.

To rigorously test the effects of alternatives the analyst may employ various operations research techniques. The general approach in using these techniques is either

(1) to simulate the functions of the system, including the interdependence of sub-systems, on a computer and consider the effects on the output of the system following changes to the inputs, the process unit, and the environment, or

(2) to identify the problem as a specialized type (i.e., queueing, allocation, transportation, etc.) and seek the solution through the respective applicable techniques.

Either of these techniques may use mathematical models.

These models are representations of the systems or sub-systems under study and are developed to explain relationships within the system rather than describe the components of the system. These facilitate the determination of how changes in one or more components of the modeled system may affect the rest of the system. Since the changes are made in the model and not in the system itself they are referred to as outside tests.[11]

The advantages of manipulating a model rather than the real system should be quite clear, particularly when changing a complex business system, for the most part, is expensive, non-reversible, and slow reacting.

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[11] Van Court Hare, Jr., Systems Analysis : A Diagnostic Approach, (New York : Harcourt, Brace & World, Inc., 1967), p. 241.

In systems analysis the model is an instrument which assists in efficiently evaluating alternatives. Whether the technique used be analytic, numerical, or Monte Carlo[12] it is important to remember the model may not accurately represent reality. Therefore, the policy (alternative) which appears to be best in terms of the model may not be the best in actuality.

For example, a value which is maximized in the solution may not be the best measure of effectiveness relative to the objectives of the system. Solutions are therefore relative to the model[13] and not necessarily to the real system represented by the model.

It is evident that different changes will not only have different effects on the functioning of the system but will also carry different costs. The accurate analysis of these costs is an integral part of the analysis of alternatives and involves the same thinking as that required in defining the measures of effectiveness in the problem formulation. Churchman et al., suggest that "...relative weights might be assigned in terms of dollar amounts merely by putting a certain dollar sign on every objective."[14] Although the use of the dollar sign is readily understandable, objective, and universal, some difficulties may be encountered. Two frequent difficulties include

(1) a difference in utility for the things having the same cost, and

(2) costs which are considered "intangible" and therefore difficult to assign

One of the methods[15] used in assigning dollar

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[12] Churchman et al., Operations Research, p. 169.

[13] Ibid., p. 169.

[14] Ibid., p. 136.

[15] Ibid., p. 137.

figures to objectives is to first consider only those objectives for which a dollar figure can be rationally and accurately be assigned, i.e., the optimization of a plant location in terms of total expected transportation costs. A model of the operation is constructed in which the costs are defined in terms of the objectives. After determining from the model the "optimal" decision rule, the results are presented to the decision-makers for qualitative evaluation. The relative importance of qualitative considerations can be identified through observing the decision-maker's reaction to each of the alternatives. In this way monetary scales can be used in most research projects.

Whether the analyst uses a mathematical or a more heuristic approach to the evaluation of alternatives he will come to the point where further analysis will only produce marginal results. Here he must consider the selection of those alternatives which will best assist the system in the attainment of it's objectives.

It is evident that different changes will not only have different effects on the functioning of the system but will also carry different costs.

Implementation and Follow-Up

Following the selection of acceptable alternatives the problem remains of implementing the recommended changes. The detailing of how the changes will be made and who will be involved can have a significant impact on the ultimate success of the program. The strength of the program at this point rests on the organizational behaviour and human relations aptitude of the person (analyst or manager) guiding the changes. The timing of changes and the involvement of personnel become key factors.

In the design of recommended changes the analyst will have specified what feedback should be expected following the successful implementation of the changes. This specification of feedback requirements and the testing of

the system performance is a major distinguishing characteristic of the systems approach.

If the implemented changes in the system do not cause the system to perform as predicted then it is possible that the initial analysis of the system may not have been accurate, that the impact of the changes were not fully understood, or there may have been environmental changes. Cognizant of the fact that the system is not performing as desired, the analyst must be prepared to return to the problem and examine the now existing system.

The consequences of this circular process may appear similar to the dog chasing his tail around the tree. However, in the systems approach, besides gaining an appreciation for the functioning of the system we are hopefully improving the performance of the system with each cycle. Furthermore, through the creation of the feedback mechanism we receive information concerning the performance of the system. This information will assist us in maintaining control of the system in the pursuit and reappraisal of objectives.

CHAPTER IV

THE LAW FIRM

Introduction

The purpose of this study has been to operationalize the concepts and methodology discussed in Chapters II and III. Because of constraints on time and personal experience the study was not as exhaustive as it would have been if carried through to the implementation and feedback analysis steps.

In the study we define the system as one which includes the administrative, control, and information sub-systems of the law firm.

History and Problem Definition

The law firm was chosen as an area of study because it affords subject matter which has received little or no attention in the form of a diagnostic study. Following an initial study of the firm it was decided that it would be possible to produce meaningful results from a systems analysis.

The study attempts to give substantive meaning to the theory and concepts explored earlier in this paper. Further, the selection of an area of study which had not been previously explored has provided the freedom of designing one's own specific methodology for the problem.

The general goal of the system studied is to provide legal service in as efficient and effective a manner as possible within the constraints of ethical practice and to realize greater profits through improved performance. The initial formulation of the problem to be solved was in answer to this goal. From what has been said earlier regarding the systems approach, this can hardly be considered the problem formulation. However, as we proceed

into the study we will see how this very general view is revised into one which should specifically assist in examining and diagnosing the system.

The Study

In relating the results of the study conducted on the firm (the system) we will briefly detail the nature of the practice and follow-up with an analysis of its administration, control, and information functions (subsystems). From this information we will be able to propose a problem formulation which will be constructive in considering and appraising alternatives consistent with the firm's objectives. Finally, we will recommend changes to the present system which, from the results of our diagnosis, should make the firm more efficient and profitable. We will not be able to empirically test the recommended changes but should be able to identify those areas where one may expect specific benefits and improvements and also those areas where new problems may be likely to occur.

(1) An overview

To provide an overview of the system we will follow through the processing of a hypothetical legal case. For purposes of clarity the case will be simplified to some degree. This simplification, however, will not obscure or detract from the portrayal of the system.

The process usually starts with a phone call or a visit from the prospective client. The lawyer will first question the caller for details including his name and address, and basic details of the matter (time, place, other parties, witnesses, etc.). At this point the lawyer will check for any conflicts of interest. There would be a conflict if one of the other members of the firm were representing another party in the proposed action. If this were so then the lawyer would have to advise the caller to seek advice from another law firm.

If there were no conflict of interest then the lawyer would accept the client and attempt to ascertain

the complete details of the situation which led the client to seeking the lawyer's advice. At some point in the exploration the lawyer may decide that the client is not in a good position should the case proceed through the courts. In such an event he would advise the client of this fact and recommend that they either drop the case or possibly attempt to settle the matter without going to court. An example of such a situation would be where the possible value to be gained in settlement was less than the costs of reaching a settlement through the courts.

Whether or not the case is taken through the courts or is simply administered in a legally authorized manner as required in real estate and estate matters is not important for this study. What we must appreciate is the requirements which must be met by the administrative sub-systems and the lawyer's own legal information system to enable him to perform his responsibilities.

The administrative sub-systems include the secretarial support without which the system probably could not function, at least not with the efficiency we are familiar with today. There must be administrative procedures which

(1) maintain a record of time spent by the lawyer on behalf of the client,

(2) maintain a record of monies paid out by the firm for various services (title searches, long distance phone calls, photo-copying, etc.) on behalf of the client, and

(3) maintain the accounting records necessary for the financial management (payroll, taxes, etc.) of the firm.

The firm also requires procedures of obtaining information from various registry offices (i.e., Land Titles, Companies Branch, Motor Vehicles).

The lawyer's own information system is basically a research process. As a result of his legal training and experience he will be able to research a specific matter through knowing how to use and reference legal publications which provide statements of law (Statutes) and interpretations of how the law has been applied. His effectiveness will be a reflection of how quickly and thoroughly he can research a problem.

Finally after the case has been dealt with the lawyer will have his secretary assemble the various time account and disbursement records. He will then dictate a letter of account to the client. Unless the lawyer is faced with having to sue in order to collect his account he is through with the file except for initiating the closing of the file following the receipt of the fee.

A billing register is maintained and if the bill is not paid within 30-60 days following the initial billing a reminder is sent to the client. This is done 30 days following the first month end after billing and, after two such reminders, the client is informed that legal action may be taken to collect the fee. Such an action may be carried through depending on the merits of the case.

After the fee has been collected and/or the file has been closed, the file is processed into dead file storage. This involves gathering all memoranda into the file and then recording the termination of the file in the active file register.

(2) The objectives

The objective of the firm has been stated as providing efficient legal service and realizing improved profits. However, there are several causal relationships connected to this main objective which provide a foundation upon which we can build our analysis.

A firm which is functioning efficiently carries with it the connotation that there exists within it a smooth interfacing of sub-systems with a minimum of bottlenecks. Under these conditions one can expect that not only the expense to output ratio will be satisfactory but also that the time spent by the lawyer on the client's case will be used effectively.

The lawyer who is able to give more efficient service stands to gain a significant amount of respect from his clientele. First, he will probably do a more thorough job on the case and second, will be able to complete the work in less time. This becomes particularly significant in satisfying the client's expectations, especially in light of the increased use of rapid information systems in business and industry. Since the law firm cannot advertise its service in the normal way it must rely largely on its reputation to bring in new business. Therefore, a firm which is able to effectively handle its client's affairs would be in a good position to attract new business.

If the lawyer is more efficient he will be able to charge more for his services. However, the client will not necessarily have to pay more for the same services because the time saving by the lawyer and his administrative staff could more than offset the increase in the fee schedule.

Finally, the aggregate result will be more profitable, smoother running system which will provide a more stimulating, satisfying, and effective work environment.

(3) The existing system

The firm operates in a relatively stable environment. Its overt competition appears non-existent because law firms cannot advertise or reduce their fee structure to attract clients. Outside of personal contacts the only way the firm has of attracting new business is through its reputation. To acquire and maintain a good reputation

the firm must be competitive. Normally the operations of the law firm are not significantly affected by changes in the economy.

The firm is made up of six partners and provides a full compliment of legal services. Within the firm each partner more or less specializes his practice in a specific area. These areas of emphasis by lawyer, are:

(a) municipal law
(b) insurance law
(c) corporate law
(d) conveyancing and estate law
(e) insurance and criminal law
(f) matrimonial law and legal aid.

The firm normally carries one articling student.

An organization chart which illustrates the areas of responsibility for both the lawyers and their secretaries is shown in Figure 4.1.

The management committee is made up of two of the partners, as specified in the partnership agreement. Lawyer B is responsible for facilities and equipment which includes appraising alternatives, mainly in terms of equipment, and making recommendations for implementation of changes at the monthly partners meeting.

Lawyer D is responsible for personnel, including general discipline, training and assignment of administrative responsibilities. He is also responsible for the assignment of special projects, and work coverage during sickness, and holidays. The receptionist is directly responsible to lawyer D. Each secretary is assigned to one lawyer and is responsible to him for the fulfilment of her secretarial duties.

Most of the financial record keeping for the firm is done by the secretarial staff as a part of their administrative duties. However, an accounting firm is retained to maintain the ledger, and produce monthly and annual statements.

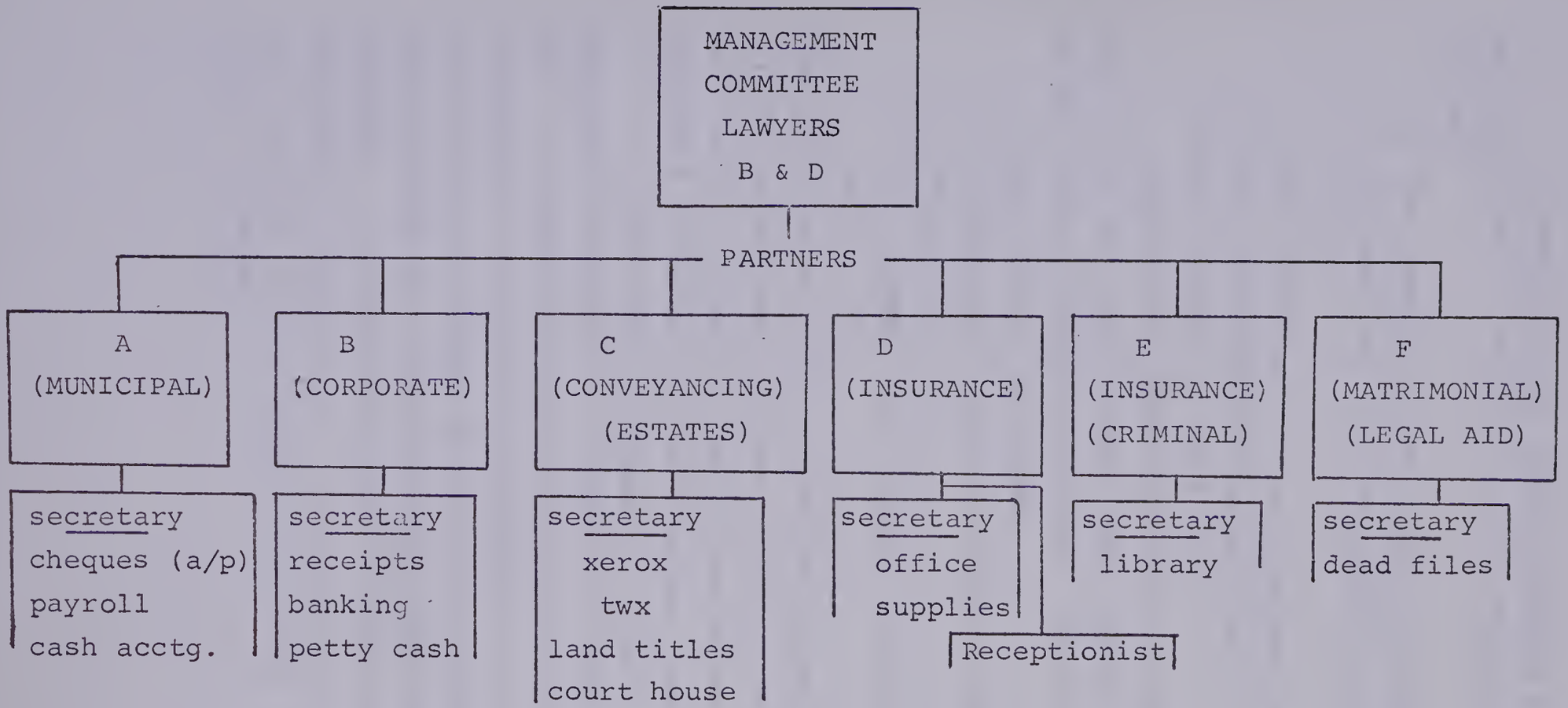

FIGURE 4.1 Organization chart of the firm.

A number of the administrative procedures have been provided in writing for the secretaries. These include

(1) the opening of new files, (see Appendix B),
(2) the handling of disbursements on behalf of the client,
(3) the operation of the telephone switchboard,
(4) the ordering of supplies, and
(5) the closing of dead files.

Besides the above there are a number of procedures which have not been written down and are typically handled by the longer service employees. These include

(1) the receipt of monies,
(2) banking and handling of petty cash,
(3) the payroll, and
(4) the payment for supplies, equipment and office rental, etc.

Flow diagrams of these procedures (Appendices C to F) illustrate how many of them, although relatively simple and straight-forward, involve the communication and co-ordinated activity of more than one secretary.

In the area of financial control, the firm has taken the initiative to prepare a budget for each fiscal year. As mentioned earlier the firm receives an operating statement at the end of each month from its accountants. Although the statement is not very refined it does at least provide the firm with some data regarding its performance. A skeleton outline of this statement is illustrated in Appendix G. An analysis of the accounts for the last four years yielded the results illustrated in Figure 4.2 below.

FIGURE 4.2 Expenses as a percentage of the firm's collections.

	1967	1968	1969	1970
COLLECTIONS:	100%	100%	100%	100%
EXPENSES:				
Salaries	34.7%	12.2%	15.3%	15.3%
Furniture and Space	8.1%	11.0%	11.7%	8.9%
Supplies and Telephone	9.9%	4.5%	5.7%	7.3%
Business Promotion and Donations	2.7%	1.4%	2.0%	2.3%
Accounting and Audit	1.5%	0.7%	2.1%	1.1%
Ass'n fees and Dues	0.7%	0.6%	0.7%	0.9%
Library	1.6%	0.8%	1.7%	1.2%
Misc.	2.5%	0.3%	3.1%	1.1%
TOTAL	61.7%	31.5%	42.3%	38.1%

The results particularly for the last three years are considered satisfactory. It has been stated that many firms are faced with expenses of 50% - 60% of collections and that 40% is almost a target figure.[1] The results of this study however may suggest that this figure is not appropriate as an objective.

In the firm studied, each lawyer is responsible for his own appointment schedule and docket control.[2] The

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[1] Strong and Clark, p. 13-14.

[2] Docket control is the recording of important dates in such a manner to assure that the numerous day-to-day obligations, which are an integral part of the operation of a law firm, are met.

general method used is to enter important dates on a calendar record which is used by both the lawyer and his secretary. When one considers such things as holidays, sickness, and change of personnel it is not difficult to appreciate the weakness built into this system.

Two examples which might illustrate the importance of docket control to the firm are (1) the possibility of a default judgement being taken against a client, or (2) the possibility of losing the right to action following the invoking of the Statute of Limitations.

As mentioned earlier, information requirements are of two main types. The first is the type available from the various registry offices while the second is the legal information which originate in the law themselves. It is this second kind of information which provides the lawyer with the policies and rules against which he must compare the facts of his case.

It was interesting to observe that after spending three years in law school and many years in practice developing his own information system of the law, the lawyer usually spends little time considering the efficiency of his own information retrieval. Following is a brief review of this general area of legal information retrieval.

The tendency for lawyers to specialize in a particular area of law is in direct response to the near impossibility of keeping up-to-date in all or even a number of areas. Because a lawyer who specializes in a particular area does not have to brief (research) the law for each individual case, he will be more efficient in his handling of matters in his own area. By virtue of being more efficient, the lawyer is able to charge more per hour for his services, making his own time more profitable.

The problem of keeping up-to-date on the law is two-fold. First, legislation at the level of government

(municipal, provincial, or federal) constitutes a change or addition to the law. Second, in our precedent system each individual ruling becomes an interpretation of the law. It is therefore, easy to appreciate that the lawyer who specializes in his practice of law will have a better chance of keeping up to date on current material since he will have proportionately fewer changes to keep abreast of.

As has already been mentioned earlier in the study the individual members of the firm specialize in their practice of law. It was suggested by some of the members that an even further degree of specialization would be beneficial.

The individual lawyer keeps up to date through reading recent court decisions and changes in legislation. For this purpose the firm maintains a library which in the past year required expenditures equalling 1.2% of the firm's collections to maintain. It provides essentially all the reference material required by the members of the firm. It was noted however that the indexing system was very weak.

(4) Problem formulation

In formulating the problem one must consider the constructive attainment of the firm's objectives. In general terms these objectives as enumerated earlier, are:

(1) to provide efficient and effective legal service
(2) to realize greater profits through improved performance
(3) to have a smooth interfacing of sub-systems
(4) to have a stimulating, satisfying, and effective work environment.

In evaluating these objectives it appears at this stage of the study that the main problem is to provide the firm with more efficient functioning of its internal sub-systems. The main premise behind stating the problem in this manner is that if the internal functioning is more efficient then this affect will carry over to the external

relationships (i.e., reputation, client relationships, etc.) and the firm will at least move toward its stated objectives.

(5) Consideration of alternatives

In considering alternatives in this study we will be taking a somewhat academic approach. We will not be testing any great number of feasible alternatives but will be exploring the impact of a few selected alternatives. Since we will not be proceeding through to implementation and the specification of feedback requirements, the goal will be to evaluate the alternatives in a manner consistent with the systems approach.

It should probably be pointed out at the start that each alternative may not be an independent total solution to the problem. They are termed alternatives for the purpose of initial evaluation. However, the final testing and ultimate changes will most likely be made up of a combination of various alternatives.

Early in the study, as comprehensive a list as possible was compiled of alternatives. This list was later edited and added to as the analyst gained a better understanding of the system. As an aid to narrowing down the list even further, Churchman et al., pose four questions. For each phase of the system would a change

1. in personnel affect the efficiency of the system relative to the sponsor's objectives?
2. in operations affect the efficiency of the system?
3. in materials and/or machines affect the efficiency of the system?
4. in the environment affect the efficiency of the system?[3]

The expression of an affirmative answer to any of these questions can be used as a guide in the exploration of specific alternatives.

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[3]Churchman et al., Operations Research, p. 113.

For the law firm there are a number of alternatives which reflect positive responses to the above questions. It is not simply a matter of "to do A or not to do A." When faced with a number of alternatives as we are in this study it is important that the analyst not end up with a sub-optimal performance for the system as a whole through treating each sub-system independently. In other words one must attempt not to lose sight of the performance of the total system while enumerating specific alternatives.

In a system the size of a law firm, it is relatively easy to appreciate the performance of the total system. However, in the investigation of large scale systems and their complex problems, attempting to deal with the total system is not a realistic objective. In this regard Ackoff states that:

> The optimizing planner seeks the best available policies, programs, procedures, and practices by use of mathematical models. . . . His capabilities are currently limited because he cannot construct one model that represents all aspects of a total corporate system. He must model it in parts and, because of the as yet unpenetrated complexity of some of the parts, he cannot model all of these.[4]

(6) Evaluation of alternatives

Alternatives which have been selected for review in this study include:

(1) the development of simple, efficient, and easily understood administrative procedures,

(2) job specialization for the administrative staff,

(3) the use of electronic data retrieval by the lawyers, and

(4) changing the size of the firm.

In considering the alternatives of the firm we were constrained by the unavailability of extra floor space.

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[4] Russell L. Ackoff, A Concept of Corporate Planning, (New York, N.Y. : Wiley-Interscience, 1970), p. 12.

An alternative would have been to consider other offices, possibly in a different building. However, there is a distinct possibility that functional space will be available in 1 1/2 to 2 years. This is an example of where objectives were not clarified until the management was presented with the alternative of moving. The negative reaction to this alternative not only clarified one of the objectives but served to establish a guideline for the enumeration of other alternatives.

Alternatives were not discarded simply because they could not be implemented at the present time. It merely requires that the alternatives be considered part of the longer-range plan.

In the first alternative we are considering the development of simple, efficient and easily understood procedures. This mainly includes the examination of the administrative sub-systems, some of which are illustrated by way of flow charts in Appendices C to F. There are two reasons why a redesign of these procedures would prove profitable. First, there are a number of duplications of effort in maintaining the same information, and the procedures which are used, by their design, are notably inefficient. For example, the lawyer's time is first recorded in detail on his day-timer, it is then recorded on the green card on which disbursements are also recorded and finally the total amount is detailed on the ledger card when the bill is rendered. Two alternatives for the solution of this problem might be (1) to have a ledger machine which is operated like a typewriter and transposes information directly from day-timers to ledger cards, (2) to have one of the inside (two number) phone extensions connected directly to a dictating machine. The lawyer would simply dial the number and verbally record the time. The taped information would then be later transposed to the ledger cards as in the above example.

Carrying this analysis one step further there are many classes of billing which are done almost automatically. A trained clerk could prepare these from the ledger for the lawyer's approval. Even if the lawyer only spends 12 minutes reading the ledger information and rendering the bill, at 50 dollars per hour the rendering has cost him 10 dollars in lost time.

Second, there are several procedures which require the co-ordinated effort of more than one person. Not only does this usually lead to administrative bottlenecks but it is also conducive to personnel clashes and misunderstandings. Therefore, there is a need to eliminate or reduce these problems through the redesign of the procedures.

A second alternative considered in the study involves job specialization for the administrative staff. Instead of each secretary carrying out her secretarial functions plus a few administrative functions the alternative might be to have fewer secretaries and a number of administrative specialists.

The dynamics of this alternative may be more easily appreciated if it is opened up to include longer-term considerations. For the full effect to be realized it is almost essential there be more administrative office space than is available at present.

The alternative of job specialization involves creating administrative procedures for any task which does not require special consideration. For example, when a lawyer finds he is repeatedly dictating a certain type of memo which possibly requires only changes in the date and the names of the parties, then the memo should be drafted into a standard form and completed by clerical personnel.

A second example in this area might be to train non-legal personnel for such duties as (1) conducting follow-up interviews with clients after the client has been accepted, (2) maintaining the docket control, and

(3) rendering of accounts for the lawyers approval. Turner in his article "The Effective Use of Lay Personnel" relates how his firm with three active lawyers employs 27 non-legal personnel.[5]

A major problem in implementing such an alternative is one of training. However, once a specialist has been trained for each area of responsibility then that person will train a back-up or secondary specialist who can assume the primary role in the event of absence or resignation.

The keynote to the success of such a program is in the management of the system. It would certainly not be economical for the lawyer who is not a trained administrator to become involved in other than the policies of the management. To be realistic, the manager should be given the same operating authority typically held by the managing partner and should be responsible only to the management partner or committee.

A third alternative would be the possible future use of electronic data retrieval by lawyers. The system could incorporate two sub-systems. It would probably use a remote terminal unit wherein the firm would have access to centrally stored data.

Although not in widespread use in Canada, there has already been some development in the establishment of such data banks.[6] The establishment of these data banks usually

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[5] Lee Turner, "The Effective Use of Lay Personnel", Proceedings of the Third National Conference on Law Office Economics and Management. (Chicago, Illinois : American Bar Association, 1969), p. 27-44.

[6] For a more complete discussion on the use of the computer in the practice of law, see the journal: Law and Computer Technology, (Washington, D. C. : World Peace Through Law Center).

begins with one specific area of law (i.e., contracts) which are later expanded to other areas. In first setting up the data bank, the specified area of law must be researched and the relevant data must be indexed and stored. Once operational the data would have to be constantly updated. It would probably be indexed by a key word cross-referencing system. In such a system the data selected would be refined as each additional reference word narrowed the field of interest.

For example, if someone suffered injury as the result of exposure to an insecticide being used by a professional exterminator (the client) the relevant key words might be: defendant, insecticide, custom applicator, personal injury, and contributory negligence.

Besides access to the central data bank the firm might also wish to maintain a record of briefs prepared by its own members. In such a case the firm could simply call up its own storage space and store the information away for its own exclusive, future reference.

There are many exciting possibilities which can be envisaged with the use of electronic data processing. A few of the more obvious ones in addition to the above include time recording, docket control, and the usual accounting procedures which could be handled on "canned" programs with the minimum of programming experience.

(7) Measures of effectiveness

Before discussing the last alternative, that of firm size, it is worthwhile considering the measures of effectiveness and their two component measures: (1) the importance of the objectives, and (2) the efficiency of the alternatives.[7]

Since the investigation and description of the

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[7] Churchman et al., Operations Research, p. 118.

system were carried out in fairly general terms, it will not be possible to build a mathematical model in which the measures of effectiveness would become an integral part. They can, however, be heuristically defined to illustrate the principles involved

One of the objectives stated earlier was that the firm desired an increase in profits. In more exact terms this probably means an increase in profit per lawyer.

In the development of a measure of effectiveness it is essential that the measure reflect the intent of the objectives. In this study a measure which might be considered is the ratio of collections to expenses. The measurement would indicate a favorable change if an increase in collections were accompanied by a less than proportional increase in expenses or a reduction in expenses were accompanied by a less than proportional reduction in collections.

This measure is only one example of the cost/benefit type of analysis. Other measures which might be considered are (1) cases won/cases lost (2) turnover of personnel/time period (3) increase in accounts rendered/accounts collected, and (4) increase in number of clients/time period. It is not difficult to appreciate some of the dysfunctional effects inherent in these measures. However, their consideration does provide insights into the functioning of the system.

The three selected alternatives described earlier can be generally evaluated in terms of the collections/expense measurement of effectiveness.

First, the development of simple, efficient, and easily understood administrative procedures will probably not change the expense structure significantly. However, the implementation of these changes will likely make the lawyer more efficient in his duties through improved administrative assistance. He could then charge more for his services and become more profitable.

Second, job specialization may lead to an increase

in staff which would increase the expense side of the measurement. However, if this would free the lawyer of clerical tasks for more meaningful work then again through the increase in the fee structure the total affect may be a more profitable operation.

Finally, the evaluation of effectiveness in the use of electronic equipment for data storage and retrieval, and other applications mentioned earlier. requires more data than has been obtained in this study. It is not clear what the solution would be. However, it is unlikely the total expenses would be reduced. The benefits would probably again come from the more effective utilization of the lawyer's time and with the same possible results noted above.

In establishing measures of effectiveness, one must be careful to ensure that they are as representative of the system as possible. Consider the case of the lawyer practicing law in his own house, using the court house library, and employing no secretarial or clerical help. Even if he could attract some clients, his collections would probably be low compared to those of lawyers practising law in established firms. However, the results of the use of the measure of collection/expenses would appear satisfactory because of the negligible expenses incurred. On the other hand, the use of the measure of collections/lawyer would indicate an unsatisfactory condition in the system. This would denote a faulty choice in the use of the initial measure of effectiveness.

Finally, one can consider the optimal size of the firm as a viable alternative. The actual determination of a possible optimal size of the law firm is outside the scope of this study because in the determination of objectives this consideration was found not to be acceptable at this time. However, some of the factors bearing upon the determination of firm size are considered in the following summary.

(8) Summary of results

The results of the study presents two major sub-systems,

(1) the administrative function, and

(2) the legal information.

Following the simplification of procedures and the specialization of tasks, the question would be one of the relationships between work volume (output) and staff size (expense). It should be noted that work specialization provides a responsive framework for the measurement of work performance.

The requirement for legal information retrieval is inversely related to the specialization of each lawyer's practice. Further, the more specialized and more competent the lawyer is the more he will be able to charge for his services.

The final evaluation of the system will involve the consideration of the variables associated with the administrative function and those of the size of the firm. The final problem formulation would probably be, (1) to what extent can each lawyer specialize his services and still ensure full utilization of his available time? and (2) at what point in size does the firm make optimal use of the complementary administrative function?

Recommendations for Implementation

On the basis of the study, the following course of action should be undertaken:

(1) the development of simple, efficient and easily understood administrative procedures should start immediately.

(2) the development of job specialization for administrative staff should be carried out at the same time as job simplification.

(3) before changing the size of the firm, the management should consider not only optimal size from the legal specialization point of view but also the ratio of lawyer/staff space requirements.

The firm should also ensure that a positive view is taken toward the problem of longe-range planning. There should at least be someone in the firm, perhaps a business manager, who is charged with the responsibility of being sensitive to the future needs of the firm and analyzing the future courses of action the firm might follow.

CHAPTER V

SUMMARY AND CONCLUSION

The purpose of this study was to examine the meaning of the systems approach in light of its use in the study of administrative systems. There was no intention to carry out a complete analysis of the law firm which was the system selected to exemplify the operationalization of the concepts of the systems approach.

It was interesting to discover how little has been written on the theoretical concepts of the systems approach as a problem solving technique. There is an abundance of literature directed towards the "how to" phase but very little answering the "why" question. However, the clear reasoning approach taken by C. West Churchman in his work, The Systems Approach[1], did provide a very good framework for understanding the meaning of the systems approach.

The philosophy of systems is based on man's attempt to observe, understand, and control his world. It presents a particular way of looking at reality. It is important to remember that what is being observed is not reality but only a representation of it. It is the analyst, the scientist, the person studying the system, who is most likely to be deceived because he thinks he is dealing with reality. Churchman concludes that

> The ultimate meaning of the systems approach, therefore, lies in the creation of a theory of deception and in a fuller understanding of the ways in which the human being can be deceived about his world and in an interaction between these different viewpoints.[2]

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[1] Churchman, Systems Approach.

[2] Ibid., p. 229-30.

It is the appreciation of these concepts provided by the systems approach which constitutes the value of the approach. From a philosophical viewpoint, the person who understands that his perspective of the world is somewhat restricted is in a better position to appreciate his own status in the system.

Armed with a basic understanding of the systems approach we have attempted to develop a method of study which would assist in conducting a systems analysis. The objective was to provide practical, implementation-oriented guidelines for the analyst.

As mentioned earlier, there was no scarcity of reference material for this section of the study. However, some of the material did tend to be rather shallow in content. It was found that the Introduction to Operations Research by Churchman et al.,[3] provided the most comprehensive, well-rounded presentation. The book provided a framework for the formulation of the problem and did not simply discuss the use of models in the evaluation of alternatives.

In this study we were more concerned with the approach taken to the problem than the ultimate result of the analysis. If one were conducting a study with a view to implementing recommended alternatives then the detail required from the investigation would have to be much more complete. For example, one would probably want to perform

(1) time-motion and work measurement analysis on the clerical functions,
(2) an analysis of work flow, and
(3) an analysis of each lawyer's activities.

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[3]Churchman et al., Operations Research.

The data gathered in the investigation of the system might be used in a mathematical model to rigorously test the performance of the system as different alternatives are considered. The success of the analysis will depend on how completely and accurately the model represents the system and how well solutions can be drawn from the model after it has been constructed.[4]

The accuracy and completeness of the model will depend directly on the degree to which the data gathered in the investigation and selected by the analyst represents the system.

The study and the consideration of a few selected alternatives did illustrate the applicability of the systems approach to an administrative function. It was interesting to note the changes in the complexion of the problem as the investigation proceeded through the various stages. The relationships were at first relatively obscure, then gained a significant degree of clarity as an overall framework began to emerge, and finally became quite complex when relationships between sub-systems were analyzed in more complete detail.

To carry the analysis beyond the heuristic level discussed in Chapter IV the analyst would require considerably more data than was obtained in this study. It would be interesting, however, to see (1) the development of a model which would test the alternatives, and (2) the results of feedback following the implementation of the recommended alternatives. The study of these developments could provide material for future research.

The efficiency with which the study itself was carried out could be greatly improved with more experience on the part of the analyst. It appeared that many

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[4]Ackoff, Corporate Planning, p. 12.

of the same principles of investigation and analysis would be very similar in the study of other administrative systems.

In conclusion, the study provided a vehicle for a philisophic study of the systems approach, the exploration of the methodology required in the performance of a systems analysis, and the opportunity for testing the operationalization of concepts discussed in the systems approach.

Not only did the study of the law firm provide an area of analysis which had previously received little diagnostic attention but the limits of the system were readily definable. Furthermore, the possibility of positive results for the firm created an interest which seemed to make the purpose of the study extremely worthwhile.

APPENDIX A

A checklist to assist in the data gathering phase of the study.[1]

Internal Review Checklist

Organization

1. Is there an organization chart?
2. Is the organization clear-cut and definite?
3. Are there many or few layers of supervision?
4. Is the functional write-up of organization units clear and complete?
5. Are nonauthorized functions being performed?
6. Is over- or underorganiztion apparent? How?
7. What numbers of people are reporting directly to each person on the chart?

Procedures and Policy Manuals

1. Have procedures been written and distributed?
2. Are procedures complete and up-to-date?
3. Are flow charts included?
4. Are the procedures presented in a manner the worker understands?
5. Do employees doing the tasks have copies?
6. Do employees refer to procedures when problems arise?
7. Are policy manuals maintained?

Work Measurement and Production

1. What work measurement standards are used?
2. Do the standards accurately reflect the work to be done?
3. What overhead functions are not covered by standards?
4. Can standards be applied to these functions?
5. Are the functions on a production basis?
6. Can a production basis be applied to functions?

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[1] This is the same list as enumerated by Stanford L. Optner in Systems Analysis for Business Management., p. 88-93.

7. Obtain production rates per man hour for previous periods.
8. Obtain separate figures for overtime hours.
9. Obtain overtime hours worked for these periods.
10. What justification was furnished for overtime?
11. Do the employees have production goals?
12. Are employees aware of the goals?
13. How many employees met the goals?
14. How many employees passed the goals? By what amount?
15. How many employees did not meet goals? By what amount?
16. Is nonstandard work budgeted?

Schedules Backlog

1. How is the workload scheduled and controlled?
2. Is work introduced into the system upon receipt? What are the factors which determine this?
3. Determine the date of oldest work in process.
4. Are new batches completed before older batches?
5. Obtain backlog figures for each of last four weeks.
6. Are work priorities assigned?
7. How are the priorities determined?

Personnel

1. What job classifications are used in the system under study?
2. Obtain numbers of employees, by classification, now employed.
3. Obtain number of existing vacancies by classification
4. Is over- or understaffing apparent? What yardstick points this out.
5. Comment on employee morale, training, and supervision as they affect system operation.

Facilities, Equipment, and Supplies

1. Is the assigned area adequate?
2. Is any part of the area not utilized?
3. Does the layout lend itself to work flow?
4. Can housekeeping and orderliness be improved?
5. Are heating, lighting, ventilation, and so on adequate?

6. Are the office furniture and equipment adequate?
7. Is any equipment or furniture not being used?
8. Is equipment being used improperly?
9. What maintenance or servicing records are kept for equipment?
10. What was the cost of service and maintenance for the past three months?
11. How are stocks of supplies and forms maintained?
12. What controls are used for reordering or distribution?
13. Is excessive stocking apparent?

Records and Files

1. Are files and records maintained in a satisfactory manner?
2. Is the filing system adequate?
3. Have record retention or destruction dates been established?
4. Does justification exist for retaining inactive or completed files?
5. Can better utilization of inactive or completed file space be obtained?
6. What records or files are microfilmed?
7. Should any additional files or records be microfilmed?

Budget and Cost

1. What cost records are maintained?
2. Are the recors adequate?
3. What cost control exists?
4. What is the basis for cost estimates?
5. What safeguards control stamps and petty cash?
6. Have costs been standardized?
7. Are cost records used in budgeting?
8. How do budget estimates compare with actual costs for past periods?

General

1. Obtain completed copies of all forms.
2. Obtain completed copies of all reports required or originated.
3. Obtain copies or examples of rubber stamps in use.

Systems Review Checklist

Purpose of Operations

1. Have conditions changed since the operation was put into effect?
2. Was the operation originally set up to correct a situation that has since been adjusted?
3. Can we change the end result and eliminate the operation?
4. Is the operation the result of habit?
5. Is the cost of the operation justified by other factors?
6. Is the operation created by an incomplete, previous, or subsequent operation?
7. Is the operation performed to satisfy the requirements of all or only a few of the persons in the system?
8. How necessary is the result accomplished by the operation?
9. If it is a corrective operation, is it more costly than the difficulty it was designed to correct?
10. How else can the result be secured?
11. Are the results used as intended?
12. Are all copies of forms or reports necessary?
13. How many people or departments keep the same records?
14. Do the report costs justify the results?
15. Can the report be secured as the by-product of another operation?

Machines and Equipment

1. Does volume justify the purchase of general or special-purpose equipment?
2. Would savings effected over the average life of the equipment justify capital investment?
3. Would other intangible factors, such as better customer service, valuable management reports, and so on, justify capital investment?
4. Does the operation of the equipment require specialized personnel or can existing personnel be retained?
5. Are existing machines operating close to capacity? What is per cent of utilization?
6. Is a central filing system indicated?
7. Does existing equipment need repair?

8. Does existing equipment have periodic maintenance and inspection? Is it outdated?

Data Processing

1. What collating and sorting devices can be used to advantage?
2. Would dictating equipment conserve a stenographer's time or eliminate bottlenecks?
3. Would an automatic typewriter be more economical than the use of a manual typewriter?
4. Is a duplicating process indicated?
5. Is the volume of repetitive billing, statement, or payroll addressing large enough to indicate preaddressing from master addressing files?
6. Can the addressing or duplicating equipment economically utilize automatic feeds and ejectors?
7. Does the volume of mailing justify recommending a small or large postal meter? If a small manual one is used, would volume justify a high-speed automatic postage machine?
8. Are typewriters in use suitable for the various specific jobs?
9. Would the study suggest transferring any equipment to the other points where it can be used more effectively?
10. Can office noise factors be reduced by soundproofing and the centralizing of high-speed equipment in a separate room?
11. Are vital records adequately protected against loss?
12. Should permanent records be put on microfilm as fire protection and/or as a filing space saver?
13. Are circular, vertical, or horizontal filing devices the answer to some unusual reference or filing problems?
14. What time-saving advantages would an intercommunication system effect?
15. Would mechanical equipment be indicated to eliminate manual posting and recapping of columnar journals.
16. Are desks, chairs, and so on suitable for efficiency of the task performed?

APPENDIX B

OPENING OF NEW FILES

1. The first step to opening a new file is to record the name in the green book and from there you will obtain the number for the file.

2. The next step is to record the name and file number on an index card. There are three colors of index cards - buff, orange, and blue.

Buff colored cards	-	used for all general files.
Orange colored cards	-	used for all counties municipal districts.
Blue colored cards	-	used for R.S.T and X.Y.Z. insurance companies.

3. The next step is to record the name of the file and the file number on a daytimer card (green with holes at top).

4. The next step is to record the name of the file and the file number on a ledger card (yellow).

5. The next step is to record the information on a file folder.

RECALL FILE NUMBER --/ initials

NAME OF FILE

re

MATTER

6. The next step is to record the file name and matter on a colored label. Each lawyer has his own color of label and they are as follows:

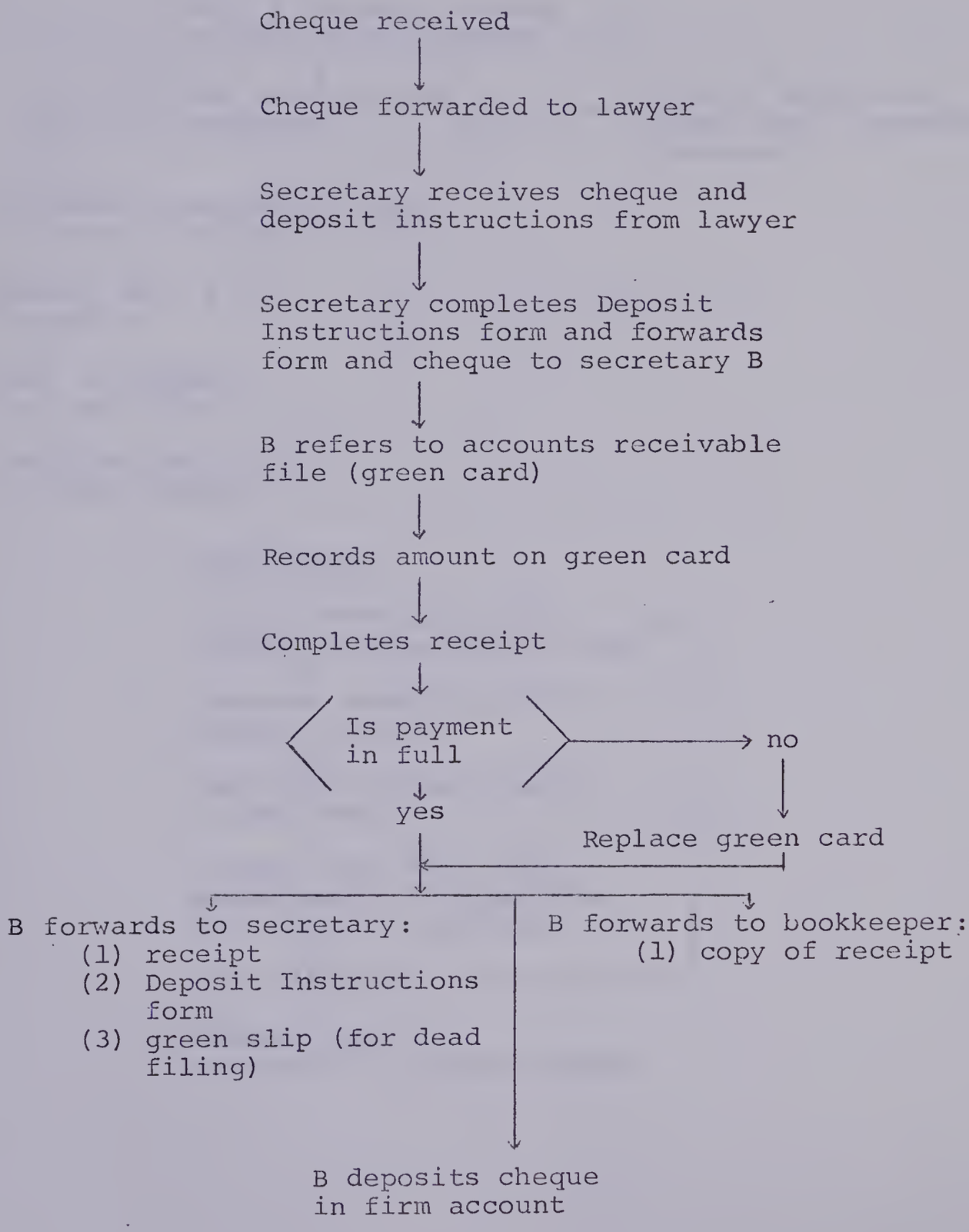
Lawyer A	Cherry
Lawyer B	Salmon
Lawyer C	Blue
Lawyer D	Yellow
Lawyer E	Buff (Goldenrod)
Lawyer F	Green
General	White

7. You then glue the label on the file folder.

8. You then have to file away the index card, which goes on the wheel on the counter, the daytimer card which goes in the daytimer books and the ledger card which goes in the ledger container in the storage room.

APPENDIX C

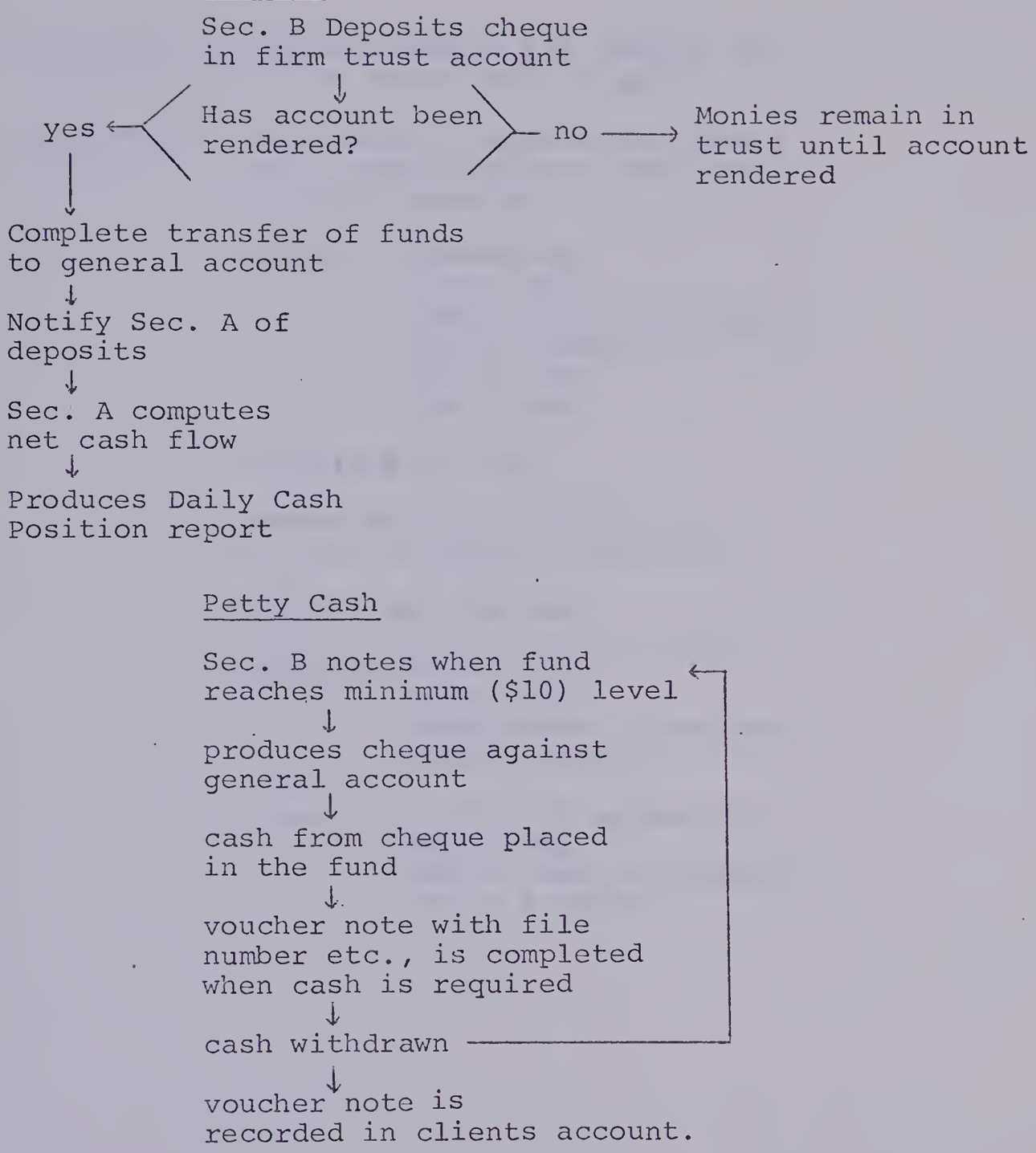
RECEIPT OF COLLECTIONS



APPENDIX D

BANKING AND HANDLING PETTY CASH

Banking



Petty Cash

APPENDIX E

PAYROLL PRODUCTION

mid-month : Produce advance pay cheques for 1/2 of gross monthly pay

month-end : from payroll register calculate total pay (including overtime) for each employee

↓

Deduct : Advance Pay
Income Tax
Unemployment Insurance
Canada Pension
Health Care
Blue Cross

↓

Calculate net pay

↓

Record deductions and net pay in payroll register

↓

Produce pay cheques

↓

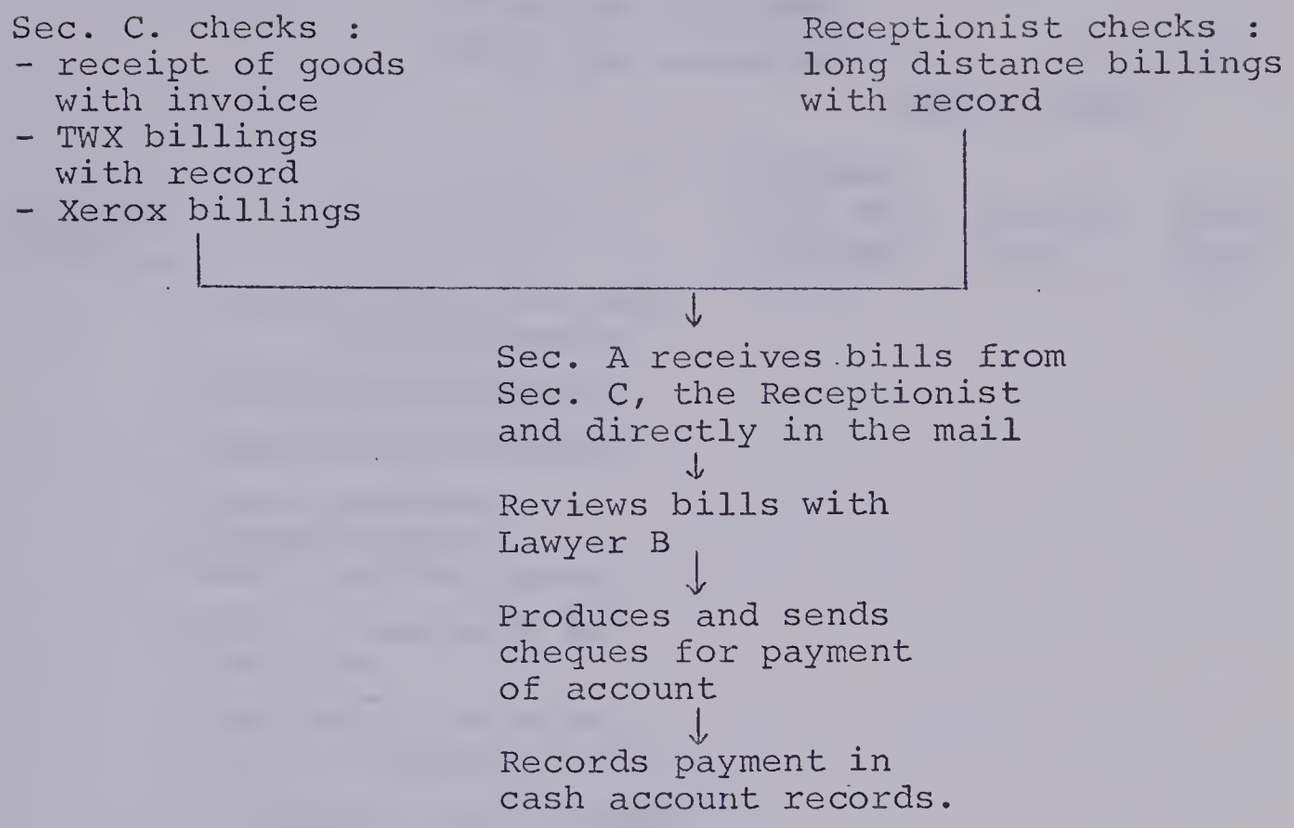
Complete records for
Income Tax
Unemployment Insurance
Canada Pension

↓

Forward records and payment of
Income Tax
Unemployment Insurance
Canada Pension

APPENDIX F

PAYMENT OF ACCOUNTS



APPENDIX G

FIRM A TO F

OPERATING STATEMENT
MONTH OF , 19

Current Month		Budget for this Period	YEAR TO DATE Current Year	Prior Year
	Collections: fees and disbursements			
	Operating Expenses:			
	Legal staff salaries			
	Other salaries			
	Casual Wages			
	Rent - office space			
	Rent - leasehold and furniture			
	Stationery, printing, office expense			
	Telephone and telegraph			
	Postage and exchange			
	Advertising, business, promotion and donations			
	Publications and reports			
	Accounting and audit			
	Employee benefits			
	Association fees and dues			
	Staff recruiting			
	Business tax			
	Interest			
	Returned cheques			
	Insurance			
	Bad Debts			
	Miscellaneous			
	Total Expenses			
	Net Collections			
	Less Disbursements paid			
	Net Receipts			

FIRM A TO F
MONTH OF AUGUST, 1969

I. CASH FLOW

	Current Year	Prior Year
Cash Balance at beginning of month		
Collections: Fees and disbursements as per Operating Statement		
Less - Total expenses as per Operating Statement, excluding depreciation		
Cash available for partners' drawings		
Bank Loan		
Partners' drawings		
Cash balance at end of the month		

II. ALLOCATION OF ACCOUNTS RENDERED

	YEAR TO DATE	
CURRENT MONTH	Total for year	Budget for this period
LAWYER A		
LAWYER B		
LAWYER C		
LAWYER D		
LAWYER E		
LAWYER F		
STUDENT		

III. RECEIVABLES - TRUST MONEY

ACCOUNTS RECEIVABLE	BANK - TRUST	CLIENTS' TRUST

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